Removing Supply Barriers

by

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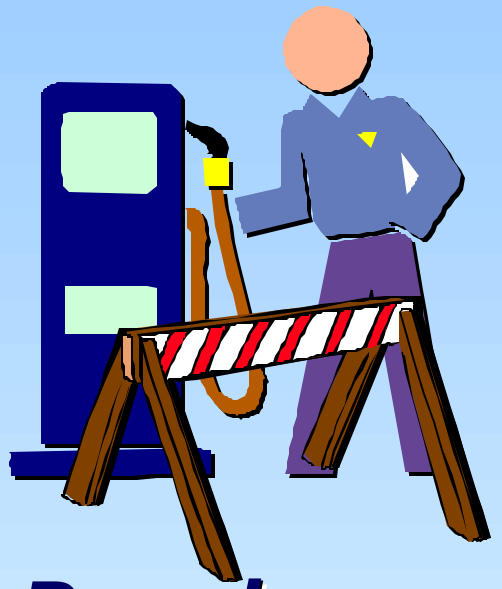
A 2nd Opinion, Inc.



for

California Air Resources Board

Public Meeting

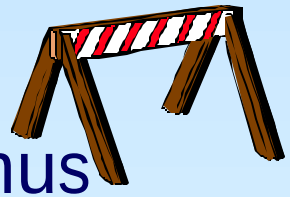
May 18, 2001

Agenda

I represent 4 companies and between 53,000 and 88,000 bpd of potential C_8 isoparaffin production.

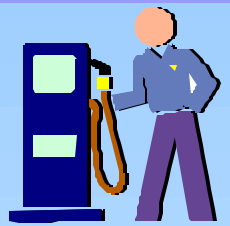
- **They are *potential* supply because there are economic and technical barriers.**

- **CARB can remove these technical barriers:**
  - The T50 cap.
  - Proper definition of de minimus other oxygenate.



Why Raise the T50 Cap?

To Improve Supply



Most of T50 Increase Due to MTBE Rejection.

- **C_3=, used to make C_7 alkylate needed to balance T50, is going to petrochemicals.**
- **Butylenes from refining, petrochemicals and MTBE feedstocks are available.**
  (See letter of 12/15/00 from *A_2O* to Alan Lloyd.)
- **The C_8 isoparaffins produced have a T50 greater than the CaRFG3 cap.**

Why Is the De Minimus Definition Important?

Could Limit Supply

Sources of unintentional oxygenate content:

- **Line flush & tank bottoms.**
- **Trace co-production in isooctane processes.**
- **Ethanol contamination.**

No Basis for de minimus levels for non-MTBE ethers and non-ethanol alcohols.

(CARB RFG3 manual on Prohibition of MTBE)

Poor definition could trigger World Trade Organization restraint of trade proceedings

Simple Solution

“No intentional additions of oxygenates other than ethanol.”

Precedent:

How lead-free became unleaded

Complex Solution

Why is California Banning MTBE?

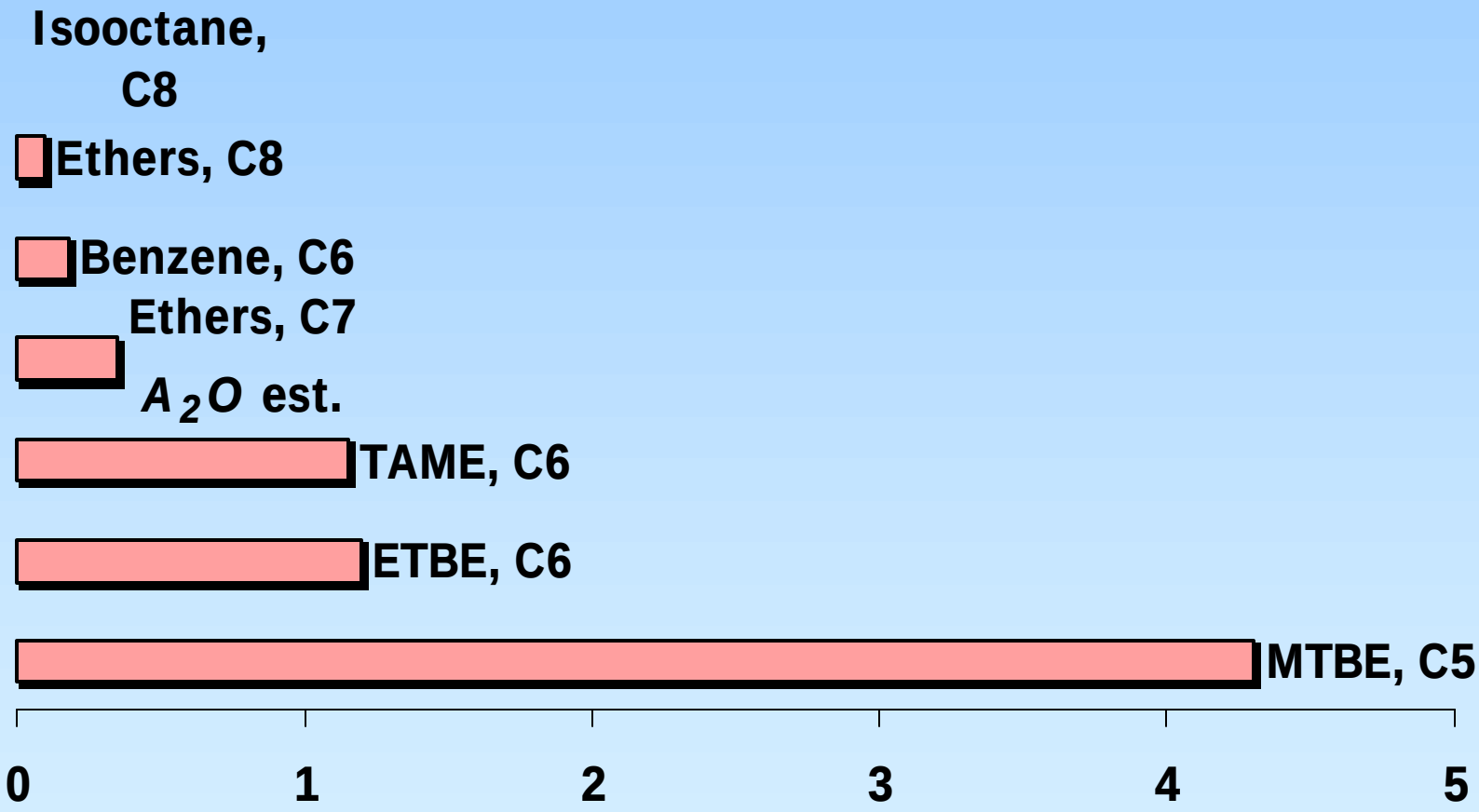
- It gets into water.
- People object to the taste and odor.
- California cannot solve its LUST problem.

If the MTBE 0.05 Vol% Standard is Correct, It Implies:

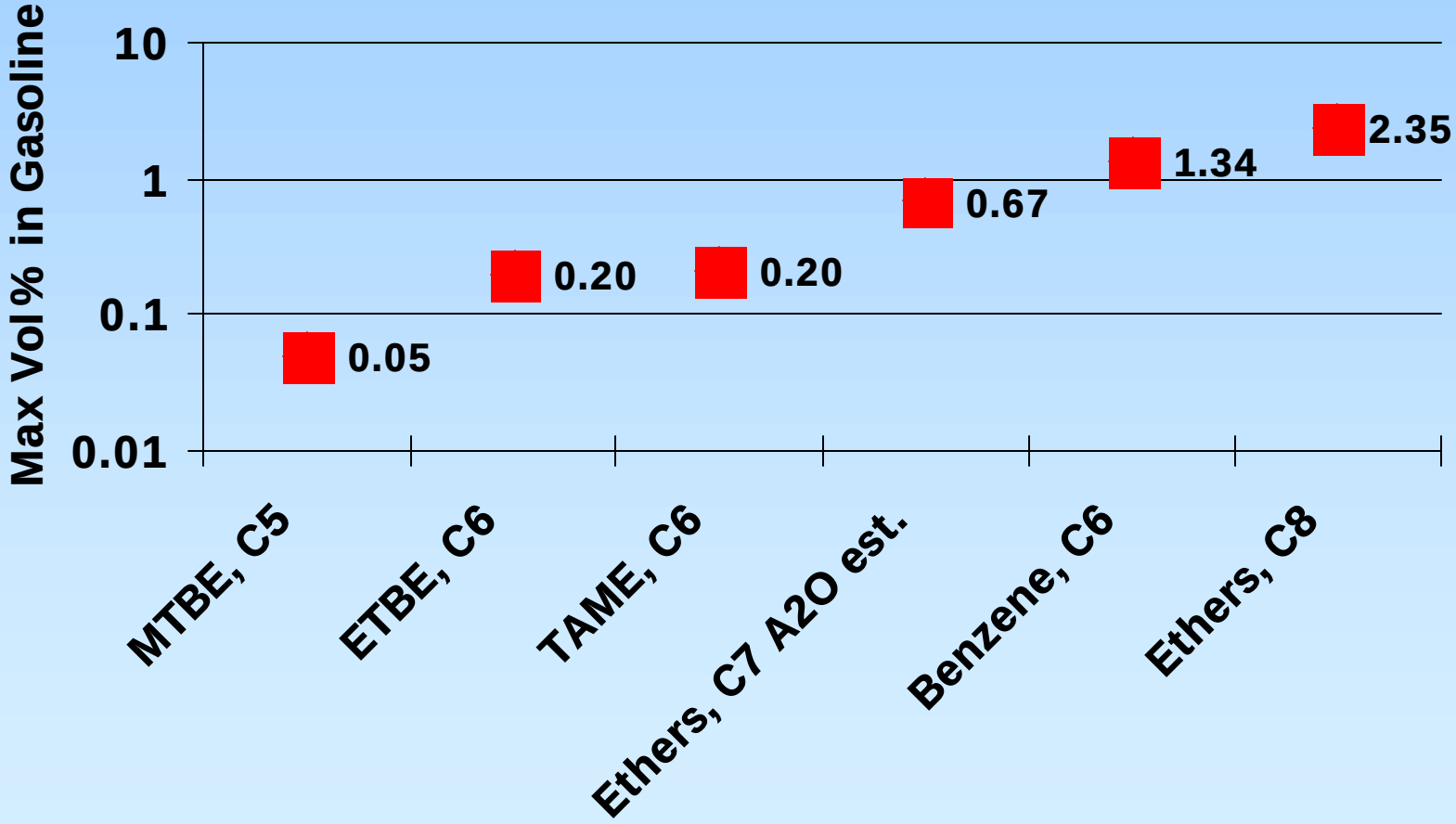
- Less soluble components can have a higher de minimus standard.

(For example: 0.2 vol% would be OK for ETBE)

Ethers Solubility in Water, Wt %



Maximum Ether in Gasoline, Vol %



Conclusion

CARB can keep it simple with "No Intentional Additions"

OR

CARB can:

- List every possible oxygenate.
- Prepare a science-based reason for capping it.
- Test for every oxygenate.

Etc... Etc... Etc...

Recommendation:

Keep It Simple

Ether Solubility in Water Vs Number of Carbon Atoms